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ABSTRACT

A study was conducted to determine whether participation in a test-taking strategy seminar significantly decreased test anxiety in first-year nursing students. The study also sought to compare nursing test scores of first-year nursing students who participated in the seminar with those who did not. The sample consisted of 30 first-year nursing students enrolled at a Southern California community college. Experimental and control groups were randomly drawn. A Test Anxiety Inventory (TAI) was administered to the control and experimental groups prior to and after taking the 3-nour seminar on test-taking strategies. Each nursing student completed two nursing tests prior to the first TAI and two nursing tests after the second TAI. The scores were analyzed and compared for both the experimental and control groups. The experimental group, only, attended a test-taking strategy seminar 1 week after completing the first TAI; the second TAI was administered to both groups 1 week after the seminar. The study found that the nursing students who participated in the test-taking seminar had significantly lower test anxiety levels and significantly higher nursing test scores than those who did not participate. (The mean nursing test score prior to the semester was 81.20 for the experimental group and 80.13 for the control group, indicating a similar sample population.) A 36-item bibliography, the Test-Anxiety Instrument and the test-taking strategies covered at the seminar are appended. (WJT)

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DETERMINING THE RELATIONSHIP OF NURSING TEST SCORES AND TEST ANXIETY LEVELS BEFORE AND AFTER A TEST-TAKING STRATEGY SEMINAR

APPLIED EDUCATIONAL RESEARCH AND EVALUATION SEMINAR

by

Cassandra Todd Carraway

JC 900 208

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ABSTRACT

There is strong evidence in the literature to support that multimodal approaches are the most desirable in reducing test anxiety and improving test performance among college registered nursing students. A Test-Taking Strategy Seminar was given to first-year nursing students enrolled in a Southern California Community College Associate Degree Registered Nursing Program. The primary emphasis of the Seminar was reducing test anxiety traumas in a multimodal approach.

The purpose of this research practicum was to compare the nursing test scores and test anxiety levels between those nursing students who participated in the Test-Taking Strategy Seminar and those who did not participate. The research hypotheses of this study were that there are significantly higher mean nursing test scores and lower mean test anxiety scores between the nursing students who participated in the Test-Taking Strategy Seminar than those who did not participate. In addition, there are significant decreases in the mean post-test anxiety scores for those nursing students who attended the Seminar. Procedures included the administration of a questionnaire addressing test anxiety levels to a control and experimental group and the collection of nursing test scores for both groups prior to and after the Seminar. This study was conducted during the

Spring semester of 1987.

The results of the study indicated that the student nurses who participated in the Test-Taking Strategy Seminar had significantly lower test anxiety levels, and significantly higher nursing test scores that those who did not participate in the Seminar. Furthermore, the mean nursing test scores prior to the Seminar were significantly similar. The mean nursing test score for the experimental group was 81.20 and the mean nursing test score for the control group was 80.13, thus indicating a similar sample population.

Based on the results and interpretation of this study, the following recommendations are suggested:

1. The results of this study be shared with the entire Nursing Faculty at the community college.
2. The results of this study be shared with other community college Registered Nursing Programs in the general geographical area.
3. More communication and literature should be generated between the local community college Registered Nursing Programs on the identification and treatment modalities of test anxiety.
4. Consult with other Registered Nursing Programs at the state universities and colleges to exchange information on the subject of test anxiety, and test-taking strategies.

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Chapter 1

INTRODUCTION

According to Langerquist (1982) the art of test-taking is knowing how to take a test and is almost as important as having the basic knowledge and information necessary to answer the questions correctly. Test-taking ability can be divided into three categories: mastery of basic knowledge and information, awareness of test-taking techniques and strategies, and freedom from anxiety which, if present at a high level, will interfere with the utilization of both of the other categories (National Nursing Review, 1983).

Undoubtedly, test anxiety is a troublesome condition found to be prevalent today among college students. Over the years, various attempts have been made to explore the role of test anxiety in the academic achievement process (Schwarger, 1986). Test anxiety is a pervasive problem on the college campus. While anxiety in testing situations may actually facilitate the performance of some students, more often it is disruptive and leads to performance decrements (Chang, 1986). It has been repeatedly demonstrated that persons who possess a high test anxiety level experience decrements in performance in evaluative situations. Test-anxious individuals perceive such situations as personally threatening, and respond to them with intense emotional reactions (Spielberger, 1975).

Nature of the Problem

College nursing students who are relaxed and confident while taking tests have a distinct advantage over those who become extremely anxious when facing an important test (National Nursing Review, 1983). There are unique and inherent problems for a nursing student when taking a paper an pencil nursing test during their course of studies (Langerquist, 1982).

Typically, a student who is taking a History test, for example, performs root memory tasks and returns that information on a test. By contrast, a nursing test may consist of some root memory tasks, but the majority of the test consists of test questions that challenge the nursing student's ability to apply various theories and concepts learned, the ability to conceptualize the information, establish nursing priorities, and then apply that information to the test question in order to answer the question correctly. Straight recall of facts is not sufficient for the nursing student to pass a nursing test (Smythe, 1985).

There is also another factor that places added anxiety on the nursing students - the inherent value placed on the test by the nursing students. The ability of the nursing students to successfully continue in the program is partially based on their test scores. Since the nursing courses at the Community College are sequential in nature, and there are a great deal of students applying for each available

seat in the program, if a student fails a semester, it may be from one to two semesters or longer before he/she can be readmitted to the program in order to continue with his/her studies.

There are many nursing review books and review classes on test-taking strategies available to the graduate nurse who is awaiting the opportunity to take the NCLEX-RN Examination (National Council Licensure Examination for Registered Nurses). In these books and classes a portion of the content is devoted to the subject of test-taking strategies. However, for the student nurses who are currently beginning their course of nursing studies, this information is not in the nursing curriculum during their course of studies at the Community College.

Purpose of the Study

The purpose of this study is to determine if there is a significant decrease in test anxiety scores of the experimental group of first-year nursing students who participated in the Test-Taking Strategy Seminar. The study will also determine if there is a significant increase in the nursing test scores between first-year student nurses participating in a Test-Taking Strategy Seminar and those not attending the Seminar.

Method of Investigation

The typical survey instrument for assessing test anxiety and elements of a test-taking strategy seminar was identified from a review of the literature. The procedure undertaken for this quasi-experimental study was the administration of the Test Anxiety Inventory (TAI), (Spielberger, 1980) to the control and experimental groups of first-year nursing students prior to and after the Test-Taking Strategy Seminar.

In addition, the nursing students' test scores before and after the Test-Taking Strategy Seminar were analyzed and compared for both the experimental and control groups. The literature suggested the use of dependent and independent t-tests for analysis of the data. This will provide data on which to demonstrate the increase or decrease of test anxiety scores and nursing test scores for those nursing students who attended the Seminar and compared to those nursing students who did not attend the Seminar. The experimental and control group test anxiety scores and nursing test scores were noted and the analysis techniques applied.

Chapter 2

BACKGROUND AND SIGNIFICANCE

Foundation for the Study

Treatment of test anxiety should reduce or eliminate adverse test anxiety experiences (Hickey, 1980). It has been well documented in the literature that students oriented to positive strategies prior to test-taking can improve their test-taking experience (Cohen, 1984). Chang (1986) noted that test anxiety appears to be a multi-dimensional issue that requires a treatment program that includes techniques designed to address a number of factors that produce test-anxious behaviors and a process of teaching the proper skills to remediate the deficiencies. The Test-Taking Strategy Seminar that will be given to the first year nursing at the Community College is a multi-dimensional treatment program.

The loss of human potential resulting from academic failure in the nursing profession is immense (Smythe, 1985). A Southern California Community College Program for Registered Nurses has seen many students who are performing well in the clinical area, but seem to have a difficult time when taking their paper and pencil nursing tests. Since it is important to the survival of the program to have a low attrition rate and accountability for vocational education programs becomes even more important as they are faced with

decreased funds and number of faculty, a study of this type will assist the Registered Nursing Program in identifying those nursing students with high levels of test anxiety and low nursing test scores, early in their course of studies and enable the faculty to offer the Test-Taking Strategy Seminar in order to assist those students and any other interested students to perform at their best and thus perhaps lower the attrition rate in the program.

Relationship of the Study to the Seminar

The Applied Educational Research and Evaluation Seminar requires a True or Quasi-experimental research study design practicum. This study meets those requirements. The study involves an experimental and control group, a treatment that was given to the experimental group, and pre- and post-measurements of both groups.

The purpose of Quasi-experimental research is to approximate the conditions of the true experiment in a setting that does not allow the control and/or manipulation of all relevant variables. The researcher must clearly understand what compromises exist in the internal and external validity of the design and proceed within those limitations (Isaac and Michael, 1985). With the foregoing in mind, this study and its design meet the requirements for a Quasi-experimental research study.

Review of the Literature

Hickey (1980) indicated that test anxiety consists of two major subscales: worry (cognitive manifestations of anxiety), and emotionality (affective manifestations of anxiety). Worry refers to cognitive concerns about the consequences of failure, doubts about one's own competence and negative self-evaluation; and emotionality refers to subjective perception of physiological arousal and unpleasant feeling states like tension and nervousness (Jerusalem, 1985). Emotionality is largely unrelated to academic performance itself (Phillips, 1985; Tyron, 1980), but worry is most consistently and inversely related to academic performance, whether it be test scores or course grades (Deffenbacher, 1977).

It is worry that is the predominant source of test-taking interference (Morris, Finkelstein, and Fisher, 1976). Therefore, the logical conclusion appears that treating the worry aspect of test anxiety might reduce test anxiety and increase the test performance. However, this is not the case. The worry and emotionality components of test anxiety are theorized to be conceptually independent; however, the two components are expected to co-vary in stress situations because the situations contain elements related to the arousal of each (Morris, Davis, and Hutchings, 1981). Finger and Galassi (1977) have demonstrated the interrelatedness of two components of test anxiety. Their research

failed to support the specific predictions that emotionality-focused treatments would reduce scores on measures of debilitating anxiety and emotionality without affecting scores on worry and that worry-focused treatments would reduce scores on measures of debilitating anxiety and worry without affecting scores on emotionality. Consequently, it appears that to design test anxiety treatments that simultaneously reduce both the discomfort of emotionality and the cognitive interference of worry, is desirable (Morris, Davis, and Hutchins, 1981). In fact, a review study by Di Tomasso (1980/1981) concluded that combined treatment formats targeting both worry and emotionality aspects of test anxiety were the most successful.

Sources of Anxiety and Anxious Students

At least four interpretations of achievement anxiety can be discerned from the literature: anxiety as failure-of-self; anxiety as cognitive worry; anxiety as arousal; and anxiety as skill deficiency. The view of test anxiety as skill deficiency stands in considerable contrast to the first three views. In its more general form, this view can be interpreted as emphasizing an indirect casual linkage between anxiety and performance via impaired study skills: ineffective study - poor performance; and anxiety - ineffective study - poor performance (Covington, 1985). A negative relation between study habits, anxiety and test performance (Lin and McKeachie, 1979) and the centrality of

good study habits to achievement are supported by research studies (McCordick, Kaplan, Finn, and Smith, 1979). Benjamin, McKeachie, Lin, and Hollinger (1981) suggest an information processing model to provide useful concepts for the analysis of test anxiety. This model explains the performance deficit of high test anxious students in terms of problems in encoding and organizing information and in retrieval of this information in a test situation. These researchers indicated that the problems of high anxious students lie all along the continuum from poor study habits, which lead to deficiency in learning the material and organizing it, to worry in the test situation that diverts their attention in such a way that they are unable to retrieve the required information. However, Paulman and Kennelly (1984) reported that test anxiety and test-taking ability independently influence cognitive problem solving in evaluative settings.

Test Anxiety, Achievement, and Treatments

The two components of test anxiety are useful conceptualizations. Test anxiety appears to be a multidimensional problem that requires a treatment program that includes techniques designed to address a number of factors that produce test anxious behaviors and a process of teaching the proper skills to remediate the deficiencies. Students react with various emotions related to either success or to failure as they go through the temporarily-ordered achievement

stages, namely, test-anticipation stage, test-preparation stage, test-taking stage, and test-reaction stage (Covington, 1984). In order to succeed in optimizing performance among test-anxious students the most effective strategies likely involve direct instruction in productive thinking skills and improved study skills as well as methods to neutralize the disruptive effects (emotionality component) of test anxiety (Covington, 1984).

A review study by Tyron (1980) indicates that almost any type of test anxiety treatment seems to reduce self-reported test anxiety (emotionality aspect of test anxiety). These techniques include attentional treatment, covert reinforcement, cognitive therapy, modeling, inoculation, systematic rational restructuring, desensitization, implosion, relaxation, cognitive modification, study skills, pseudotherapy, group mediation, and even credible placebo procedures. Other useful techniques include meditation (Kirkland and Hollandsworth, 1980) and hypnosis (Johnson and Johnson, 1984).

An adequate treatment of test anxiety should serve two purposes. First, it should eliminate or at least reduce the aversiveness of the test anxiety experience, by that the worry, tension, panic, and arousal associated with the three components of test anxiety: the cognitive, affective, and physiological responses. Second, if a casual relationship between test anxiety and test performance does in fact

exist, then any adequate treatment strategy should also result in test performance improvement (Hickey, 1980).

High test-anxious individuals have been found to perform more poorly on cognitive tasks than do less test-anxious individuals of comparable ability. This is particularly true if tasks are difficult and are undertaken in a stressful and evaluative environment (Wine, 1982).

Test anxiety is but one factor affecting test grades. Some students who are anxious about tests nevertheless perform well on those tests (Galassi, Frierson, and Sharer, 1981). However, research shows that study habits and test-taking skills of high-anxious students are generally poor (Culler and Holahan, 1980; Kirkland and Hollandsworth, 1980). Specifically, high test anxious students do poorly on essay questions and on a take-home test that does not emphasize retrieval, report problems in learning materials throughout the course, have problems in picking the important points in the reading assignments, and encode the information at a more superficial level, but do well on multiple choice questions that involve less active retrieval (Benjamin, McKeachie, Lin, and Hollinger, 1981). Furthermore, high test-anxious students do poorly on multiple choice verbal aptitude items (Rocklin and Thompson, 1985).

Cognitive treatments (worry aspect of test anxiety) that result in significant reductions in self-reported test anxiety and increase in achievement included cognitive

counseling (Holrody, 1976), which aims directly at replacing negative self-reference thoughts with statements that facilitate attention to task, study skills, and other treatments (Blackmore, 1983; Mitchell, Hall, & Piatkowaska, 1975).

Studies of tests as teaching aids have focused mostly on test performance under anxious conditions. Under anxious conditions, students are working for the grades. Generally, tests used as study aids prior to learning of study units facilitated achievement as measured by examinations administered to the students upon the completion of the study units (Fitch, Drucker, & Norton, 1981). However, tests as study aids under non-anxious conditions did not facilitate test performance of both high and low test-anxious college students (Chang, 1985). Under non-anxious conditions students do not work for grades; they are internally motivated to obtain knowledge.

In summary, test anxiety can be viewed conceptually as two separate but covaried components of worry and emotionality. Consequently, treatments have been designed so as to reduce both discomfort of emotionality and the cognitive interference of worry simultaneously. Almost any types of treatments seem to reduce self-reported emotional aspects of test anxiety; however, changing student's academic performance is another matter. Supplying the anxious students with improved techniques and with effective problem solving heuristics to replace unproductive worry seem to work best. Al-

though research results are not conclusive, it appears that multimodal approaches are the most desirable to reduce test anxiety and increase academic achievement of college students.

Chapter 3

PROCEDURES

This quasi-experimental method of research was used in this study. The sample consisted of 30 first year Registered Nursing Students enrolled at a Southern California Associate Degree Community College.

The first year nursing students at the Community College were randomly assigned into four groups with 15 students in each grouping. The experimental and control groups were selected by a random drawing. The selection was made by assigning a number of 1, 2, 3, and 4 for each of the four groups and by placing a number for each group in a "hat." The students of the first numbered paper pulled out of the hat constituted the experimental group, and the second numbered paper pulled out of the hat constituted the control group. Both groups took the Test Anxiety Inventory (TAI). The students were told that they would need to take the TAI (Appendix A) again at a specified time in the near future.

The experimental group was given the Test-Taking Strategy Seminar, that included a multi-dimensional treatment program. The Test-Taking Strategy Seminar was given one week after the completion of the first TAI. The Test-Taking Strategy Seminar was conducted at two different times, on the same day and by the same individual in order to assure total participation. The experimental group attended only

one of the two Seminars.

One week after the Test-Taking Strategy Seminar, the second TAI was administered to both groups. The nursing test scores for the nursing tests taken prior to administration of the first TAI, and the nursing test scores for the nursing tests taken after the administration of the second TAI were noted and the mean scores calculated.

Instrument

Spielberger (1980) developed the Test Anxiety Inventory (TAI). The 20-item TAI yields a total TAI score as well as separate worry and emotionality scores. The worry and emotionality subscales are each composed of eight items. Work on the TAI began in 1974 using items from the Test Anxiety Scale (TAS) and items written by Spielberger. Extensive factor analytic work resulted in the final scale. Norms are provided for college undergraduates, college freshman, community college students, and high school students. No other test anxiety inventory has such extensive norms (Chang, 1986). Spielberger and Associates also conducted extensive validity studies correlating TAI scores with scores from various personality tests and measures of aptitude and achievement. The psychometric work conducted aptitude and achievement. The psychometric work conducted with the TAI has enabled it to become the best measure of test anxiety currently available (Spielberger, 1797, 1980).

Test-Taking Strategy Seminar

There are two separate procedures that together, reduce all three components of test anxiety (Hickey, 1980). An adequate treatment of test anxiety should serve two purposes. First, it should eliminate or at least reduce the aversiveness of the test anxiety experience. Second, any adequate treatment strategy should also result in test performance improvement (Hickey, 1980). Denny (1980) suggested these two separate procedures that together reduce all three components of test anxiety, namely, cognitive therapy and desensitization, lead to the reduction of irrelevant cognitive activity, the reduction of unpleasant affect, the reduction of physiological activity, and the increase in test performance. The Test-Taking Strategy Seminar materials were derived from the Nursing Examination Review (Langerquist, 1982); and Improving Your Test-Taking Skills (Smythe, 1985). These two sources contain the most materials on cognitive therapy, desensitization techniques, relaxation training, test-taking skills, and success rehearsal currently available in the nursing literature.

The Test-Taking Strategy Seminar is three hours in length. The Seminar was given exactly as it was presented in the Nursing Examination Review and Improving Your Test-Taking Skills material to the experimental group of first year nursing students (Appendix B).

Treatment of the Data

Data collection consisted of the following scores: test scores for the two nursing tests taken prior to the administration of the first TAI, each group had taken two tests in their regular program of study; scores on the first TAI administered to each group before the Test-Taking Strategy Seminar were noted; scores on the second TAI administered to each group were noted; and test scores from the following two nursing tests taken after the completion of the second TAI were noted.

Each nursing student completed two nursing tests prior to the first TAI. The mean nursing test scores were calculated for the experimental and control groups. Each nursing student completed two nursing tests after the second TAI. These scores were also calculated for the experimental and control groups.

The first and second TAI's were scored according to the instructions provided in the test manual (Spielberger, 1980). The mean score and standard deviation of each group, experimental and control, for each inventory was computed and compared.

The mean nursing test scores were computed for each of the four nursing tests taken for each group. The mean nursing test scores prior to and after the Test-Taking Strategy Seminar were compared to ascertain if the Test-Taking Strategy Seminar improved the nursing test scores for those

nursing students who participated in the Seminar.

Null Hypotheses

For the purpose of this study, the following null hypotheses were formulated:

Hypothesis I

There will be no significant difference in the mean nursing test scores between the nursing students attending a Test-Taking Strategy Seminar from those who did not attend the Seminar.

(Ha1) There will be a significant increase in the mean nursing test scores for those nursing students who attended a Test-Taking Strategy Seminar.

(Ha2) There will be a significant increase in the mean nursing test scores for those nursing students who did not attend the Test-Taking Strategy Seminar.

Hypothesis II

There will be no significant difference in the test anxiety scores between the nursing students who attended a Test-Taking Strategy Seminar and those who did not attend the Seminar.

(Ha1) There will be a significant decrease in the test anxiety scores for those nursing students who attended a Test-Taking Strategy Seminar.

(Ha2) There will be a significant decrease in the test anxiety scores for those nursing students who did not attend a Test-Taking Strategy Seminar.

Hypothesis III

There will be no significant difference between the mean pre and post test anxiety scores for those nursing students who attended a Test-Taking Strategy Seminar.

(Ha1) There will be a significant decrease in the mean post Test Anxiety Scores for those nursing students who attended a Test-Taking Strategy Seminar.

(Ha2) There will be a significant increase of the mean post-test anxiety scores for those nursing students who did not attend a Test-Taking Strategy

Seminar.

Statistical Tests

An independent t-test was utilized to compare the nursing test scores of the experimental and control group taken after the Test-Taking Strategy Seminar was conducted to test null hypotheses number I and II. A dependent t-test was utilized for the first and second test anxiety scores for the experimental group to test null hypotheses number III.

The .05 level of significance was used to test each hypothesis. The .05 level of significance was chosen to protect against Type I and Type II errors because of the non-critical nature of the requirements to support the need for a Test-Taking Strategy Seminar for the Registered Nursing students at the Community College. In addition, a two-tailed test was utilized due to testing whether one mean was greater than another (Applied Educational Research and Evaluation Study Guide, 1984).

Definition of Terms

In initiating the study, some basic terms were indentified to help understand the intest and purpose of the study and assist in interpreting the results. The selected terms are listed as follows:

1. Student nurse: A first year registered nursing student enrolled in a two-year nursing program at a community college.

2. Test anxiety: A variable cognitive, affective, or physiological response, or any combination thereof, occurring during evaluative examinations of the self-report variety (Hickey, 1980).
3. Test anxiety score: Operationally defined as the total score on the Test Anxiety Inventory (TAI), (Spielberger, 1980).
4. Test-Taking Strategy Seminar: A three hour seminar on test-taking skills, including cognitive components, relaxation techniques, and desensitization (Langerquist, 1982).

Limitations of the Study

The study had limitations that were identified. These limitations may place restrictions upon the reliability, validity, applicability, or general usefulness of the study. In considering the intent and scope of this study, the following limitations were identified:

1. The sample was geographically and socially limited to those student nurses enrolled at a Southern California Community College.
2. The sample was limited to first-year nursing students enrolled in the Community College.
3. The sample was limited to 15 first-year registered nursing students in the experimental group and 15 students in the control group for the purpose of this study.

4. Moderator variables of the participants were not considered in this study. Variables such as age and previous knowledge of test-taking strategy techniques could have affected the outcomes being considered.

Basic Assumptions

In initiating the study, some basic assumptions were made in relation to the nursing students at a Southern California Community College. It was assumed that:

1. The sample of subjects participating in this study are representative of all first-year nursing students enrolled in a community college.
2. The responses that will be obtained will be an honest reporting of the student nurses true level of test anxiety as measured by the Test Anxiety Inventory (TAI), (Spielberger, 1980).

Chapter 4

RESULTS

The Null Hypothesis - the hypothesis of "no relationship or difference" - is the one actually tested statistically. It is an arbitrary convention hypothesizing that any relation or difference in the findings is due to chance or sampling error and puts this supposition to a probability test (Isaac, 1985:184).

Table 1

Nursing Test Results: Total Scores
Hypothesis 1

	Mean Score	Standard Deviation
Control Group (n=15)	77.86	5.239
Experimental Group	86.00	6.530
Computed t value = 3,765		
Critical t value with 28 degrees of freedom at the .05 level of significance = 2.048		

Table 1 indicated the critical value of t for a .05 level of significance for a two-tailed t-test with 28 degrees of freedom as 2.048. The calculated t score (3.765) exceeds the critical t score of 2.048; so there was a strong possibility that the difference in the means was not due to chance. Therefore, the first Null Hypothesis was rejected because the experimental group had a higher mean score.

The Alternate Hypothesis 1 (Ha1) was accepted; that the experimental group had a higher mean total that the control group, thus higher nursing test scores.

Table 2

TAI Results: Total Scores
First Hypothesis Test
Hypothesis II

	Mean Score	Standard Deviation
Control Group (n=15)	57.066	12.497
Experimental Group (n=15)	45.066	11.997
Computed t value = 2.68		
Critical t value with 28 degrees of freedom at the .05 level of significance = 2.048		

Table 2 - The critical value of t for a .05 level of significance for a two-tailed t-test with 28 degrees of freedom as 2.048. The calculated t score (3.765) exceeds the critical t score of 2.048; so there was a strong possibility that the difference in the means was not due to chance. Therefore, the second Null Hypothesis was rejected because the control group had a higher mean score. The Alternate Hypothesis 2 (Ha2) was accepted; that the experimental group had a lower mean total that the control group, thus lower test anxiety levels.

Table 3

TAI Results: Experimental Group Scores
First Hypothesis Test
Hypothesis III

	Difference	Difference Square
Experimental Group (n=15) Computed t value = 4.70 Critical t value with 14 degrees of freedom at the .05 level of significance = 2.15		

Table 3 - The critical value of t for a .05 level of significance for a two-tailed test with 14 degrees of freedom as 2.15. The calculated t score (4.70) exceeds the critical t score of 2.15; so there was a strong possibility that the difference was not due to chance. Therefore, the third Null Hypothesis was rejected because of the significance difference between two dependent sample means. The Alternative Hypothesis (Ha1) was accepted; that the post-TAI scores were lower, thus lower test anxiety levels.

Chapter 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The results of the study indicated that the student nurses who participated in the Test-Taking Strategy Seminar had significantly lower test anxiety levels, and significantly higher nursing test scores than those who did not participate in the Seminar. Furthermore, the mean nursing test scores prior to the Seminar were significantly similar. The mean nursing test score for the experimental group was 81.20 and the mean nursing test score for the control group was 80.13, thus indicating a similar sample population.

The literature review does indeed support the need to provide treatment programs to nursing students that include techniques addressing test anxiety factors. It has been demonstrated in numerous studies that those students who are provided with treatment programs focusing on test anxiety reduction techniques do indeed perform better on tests than those not having the benefit of such training (Holroyd, Westbrook, Wolf and Badhorn, 1978).

The nursing students who participated in the study commented to the Seminar Instructor that they appreciated the time and attention that was focused on their test anxiety while taking nursing tests. They indicated that they would

be interested in participating in future seminars during their course of nursing studies in order to develop the test anxiety reduction techniques. The implications of this study can be far reaching for the nursing students, faculty, and administration. The implications for nursing educators to accept their role in not only assessing for test anxiety in the nursing students, but also as a skill, that can be taught to reduce test anxiety levels, could have a tremendous impact on the retention of the community college nursing students. Nursing students having high levels of test anxiety could be identified early in their course of studies and can be referred to appropriate support services.

The literature supports the need to offer various modalities, such as the Test-Taking Strategy Seminar for the treatment of test anxiety (Chang, 1985). This allows the students to perform at their very best during a testing situation.

The nursing educators at the Community College should view test-taking strategies as a skill that is needed by all the nursing students, not only to perform at their best during nursing tests, but also during non-nursing testing situations, including their coursework at the Community College and beyond. The nursing educator misses a critical opportunity and fails in its responsibility each time it loses a nursing student due to failing grades that are related to high levels of test anxiety. It is important to

the survival of the college to have a low attrition rate; however, it is becoming even more critical when community colleges are faced with decreased funds and number of faculty. In addition, when programs are assessed for cutbacks, and they are high-cost, such as the Registered Nursing Program, by developing these skills early in the student nurses' training, by the time the student nurses take the NCLEX-RN Examination, they will have had the best opportunity to pass the Examination, thus reflecting the Program's success rate on the State Board Examination (NCLEX-RN).

A Test-Taking Strategy Seminar focusing on a multimodal approach in reducing test anxiety, and the identification of debilitating test anxiety, will enable the nursing educators to direct those nursing students to the necessary support services in order to assist them to perform at their very best. Additionally, by lowering the student nurses' test anxiety, and improving performance, this could have a profound effect by perhaps lowering the attrition rate in the Registered Nursing Program at the community college.

Based on the results and interpretation of this study, the following recommendations are suggested:

1. The results of this study be shared with the entire Nursing Faculty at the community college.
2. The results of this study be shared with other community college Registered Nursing Programs

in the general geographical area.

3. The Community College Registered Nursing Program Faculty continue to review and revise the Test-Taking Strategy Seminar by:
   A. Requesting entire Nursing Faculty to review and critique each component of the Test-Taking Strategy Seminar for its relative importance.
   B. Requesting entire Nursing Faculty to attend the Seminar to assess for clarity and understanding.
4. More communications and literature should be generated between the local community college Registered Nursing Programs on identification and treatment modalities of test anxiety.
5. Consult with other Registered Nursing Programs at the state universities and colleges to exchange information on the subject of test anxiety, and test-taking strategies.

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APPENDIX A

TEST ANXIETY INVENTORY (TAI)

(TEST ATTITUDE INVENTORY)

ANSWER SHEET

TEST ATTITUDE INVENTORY

Developed by Charles D. Spielberger
in collaboration with
H.P. Gonzalez, C.J. Taylor, G.R. Ross and W.D. Anton

NAME_____ DATE_____ SEX M F

T_____ W_____ E_____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel confident and relaxed while taking tests	○	○	○	○
2. While taking examinations I have an uneasy, upset feeling	○	○	○	○
3. Thinking about my grade in a course interferes with my work on tests	○	○	○	○
4. I freeze up on important exams	○	○	○	○
5. During exams I find myself thinking about whether I'll ever get through school	○	○	○	○
6. The harder I work at taking a test, the more confused I get	○	○	○	○
7. Thoughts of doing poorly interfere with my concentration on tests	○	○	○	○
8. I feel very jittery when taking an important test	○	○	○	○
9. Even when I'm well prepared for a test, I feel very nervous about it	○	○	○	○
10. I start feeling very uneasy just before getting a test paper back	○	○	○	○
11. During tests I feel very tense	○	○	○	○
12. I wish examinations did not bother me so much	○	○	○	○
13. During important tests I am so tense that my stomach gets upset	○	○	○	○
14. I seem to defeat myself while working on important tests	○	○	○	○
15. I feel very panicky when I take an important test	○	○	○	○
16. I worry a great deal before taking an important examination	○	○	○	○
17. During tests I find myself thinking about the consequences of failing	○	○	○	○
18. I feel my heart beating very fast during important tests	○	○	○	○
19. After an exam is over I try to stop worrying about it, but I just can't	○	○	○	○
20. During examinations I get so nervous that I forget facts I really know	○	○	○	○

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APPENDIX B

TEST-TAKING STRATEGY SEMINAR

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TEST-TAKING STRATEGY SEMINAR

I. THE PSYCHOLOGY OF TEST-TAKING

It is not just a matter of taking tests but of "knowing how to take them, making educated guesses, and utilizing the allotted time in the most productive way. You must learn to use strategy and judgment in answering questions when you are not sure of the right answer. This section will discuss practical strategies for eliminating wrong answers and for increasing your chances of selecting the best ones.

1. The first hunch is usually a good one.

2. If you cannot decide between two choices, make a note of the numbers of the two choices about which you are not sure.

3. Answer the easy ones first.

4. Be wise about the timing.

5. Use care and caution when using electronically scored answer sheets.

6. Stay the entire time allotted.

7. It is better not to guess wildly.

8. On the morning of the test, avoid excessive oral intake of products that act as diuretics for you.

9. Increase your oral intake of foods high in glucose and protein.

10. Prior to tests days, avoid eating exotic or highly seasoned foods to which your system may not be accustomed.

11. Using hard candy or something similar during the test.

12. Wear comfortable clothes that you have worn before.

13. Wear clothing that can be shed or added on.

14. Women need to be prepared for early, irregular, and unanticipated onset of menses on test day, a time of stress.

15. Try to limit your contacts with those who are either also experiencing test-related anxiety or who elicit those feelings in you.

16. The night before the test is a good time to engage in a pleasurable activity.

17. Get an early start.

18. Try a relaxation process.

19. Aim to do as well as you can, but avoid the same competitive pressures and strivings.

20. Discussion.

II. PURPOSE OF MEMORIZATION

You will need to memorize some items before you can rapidly assess or apply knowledge to a particular situation.

Items you should memorize include, but are not limited to:

1. Names of common drugs.

2. Lethal and therapeutic doses.

3. Lab norms and values.

4. Growth and development norms.

5. Foods high or low in iron, protein, sodium, potassium, or carbohydrates.

6. Conversion formulas.

7. Anatomical names.

8. List of cranial nerves.

III. HOW TO MEMORIZE: THE STRATEGY OF MEMORY TRAINING

1. Before you work on training your mind to remember, you must WANT to remember the material.

2. You cannot memorize what you do not understand; therefore, know your material.

3. Visualize what you want to memorize; picture it; draw a picture.

4. Use the familiar to provide vivid mental pictures, to peg the unfamiliar.

5. Use the blank paper technique.

6. Make up and use mnemonic devices.

7. Repetitively explain the material to another person.

8. Saturate your environment.

9. Feel confident in your ability to memorize.

10. Invent your own "memory button."

11. Discussion.

IV. STRATEGIES IN ANSWERING QUESTIONS

1. Always, all, never, none.

2. Broad, most comprehensive answers.

3. Test how "reasonable" the answer is.

4. Focus on the patient.

5. Eliminate any answer that takes for granted that anyone is unworthy or ignorant.

6. Look for the answer that may be different from the others.

7. Read the question carefully to see if a negative verb is used.

8. Do not look for a pattern.

9. Look for the choices that you know are either correct or incorrect.

10. Look for non-therapeutic responses.

11. Wrong choices tend to be either very brief or

very long and involved in response.

12. Better choices to select.

13. Look for the average, acceptable, safe, common, "garden variety."

14. Eliminate the response that may be the best for a physician to make.

15. Look for similarities and groupings.

16. Be sure to note if the question asks for what is the "first" or "initial" response.

17. Use your skills of reasoning.

18. Give special attention to questions in which each word counts.

19. All else being equal, select the response that you best understand.

20. Apply skim-reading techniques.

V. HOW TO REDUCE ANXIETY

1. Theory of Stress

A. Stress Reduction Techniques

B. Symptoms of stress

C. Relaxation is a gift you give yourself.

D. Breathing exercises.

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